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NEW SPECIES OF CICADIDÆ FROM SUMATRA.

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THE following species form part of a collection made in Sumatra by Mr. H. C. Robinson, Director of Museums, Federated Malay States, and Mr. C. Boden Kloss, Curator. The descriptions were drawn up two years ago, and were embodied in my report on the collection of Cicadas obtained by these two naturalists on their expedition to Mount Korinchi, Sumatra. As there appears to be no immediate prospect of publishing the various reports on these collections, I have thought it advisable to publish the following descriptions without further delay. In doing so, I wish to acknowledge the kind help of my friend Mr. W. L. Distant, who has been good enough to check my descriptions and compare the specimens with the British Museum collection, so that I hope their "novelty" may be regarded as undoubted.

Puranoides, gen. nov.

Differs from *Purana* in the absence of lateral tubercles on the second and third ventral segments; the rostrum just passes the posterior coxæ. The two genera, *Purana* and *Maua*, are very similar to this genus, but differ in having two pairs of lateral tubercles. One other genus (*Leptopsaltria*) also has two pairs, another (*Tanna*) has one pair, and I have collected a specimen on Mount Kinabalu in North Borneo, representing an undescribed genus, characterised by the presence of three pairs of lateral tubercles.

Head (including eyes) as wide as base of mesonotum and as long as space between the eyes; lateral margins of pronotum subangulate; abdomen in the male considerably longer than space between the apex of head and base of cruciform elevation, posterior portion gradually attenuated. Opercula small, not reaching second ventral segment. Tympanal coverings broader at base than long.

Tegmina and wings hyaline. Fore femora spined.

Type.—*P. klossi*, sp. n.

Puranoides klossi, sp. nov.

Male.—Head, pronotum, and mesonotum greenish-ochraceous; head with margins of front, space between the ocelli (and spot in front of the middle ocellus) and two small spots between the ocelli

and eyes black; the pronotum with two fine central black fasciæ widening anteriorly, rounded and closed posteriorly; a black lateral fascia behind the eye and another in the oblique incisure. Mesonotum with five thin black fasciæ, one central, one on each side slightly oblique and abbreviated, followed externally by another pair parallel to the last, but longer; two black spots in front of cruciform elevation; abdominal segments ochraceous to castaneous, slightly pilose, posterior margins of the segments pitchy. Beneath, face greenish-ochraceous with black longitudinal fascia continued on base and again at tip of rostrum. Tarsi and apices of femora of front and middle legs piceous, otherwise like hind legs, reddish-ochraceous. Opercula greenish-ochraceous, short, transverse with external angles bluntly rounded. Abdomen beneath dull castaneous, posteriorly darker.

Tegmina and wings hyaline; costa of tegmen reddish-golden, venation of tegmina and wings mostly blackish. Tegmina with slight infuscation on transverse veins at base of second and third apical areas and a blackish nodus at the base of the first ulnar area.

Length excl. tegm. ♂ 18 mm., ♀ 15 mm. Exp. tegm. ♂ 58 mm., ♀ 56 mm.

The female is exactly similar to the male in coloration. Another male differs from the Type in having the general coloration pale ochraceous instead of greenish ochraceous.

Type male, Type and co-Type females: Sungei Kumbang, 4700 ft., Korinchi, Sumatra, April, 1914. Types deposited in British Museum; co-Type in F.M.S. Museums, Kuala Lumpur.

Male Var. (mentioned above): Sandaran Agong, 2450 ft., Korinchi Lake, Sumatra, May-June, 1914.

Cosmopsaltria sumatrana, sp. nov.

Male.—Head and pronotum brownish-ochraceous; mesonotum paler, with two fine externally pale-edged black oblique fasciæ from anterior margin towards centre, succeeded posteriorly by a fine blackish median line and two small blackish dots placed just in front of the anterior portion of the cruciform elevation, which likewise bears two small dark spots close to those of the mesonotum.

Abdomen castaneous with golden pilum above. Face and general colouring below brownish-ochraceous, rather paler than above, with the exception of the fore and median tarsi, the apices of the hind tibiæ, rostrum, and opercula, which are dark castaneous to piceous. The last two segments of the abdomen below are dark castaneous; the inner edge of the opercula black.

Tegmina and wings hyaline, venation greenish or reddish-ochraceous. No infuscations. The opercula are long, reaching the penultimate segment of the abdomen as in *C. jacoona*, Dist.; interior margin very slightly and evenly convex, exterior margin similar except for slight constriction near base, apex bluntly rounded and narrowly margined with dark castaneous.

Length excl. tegm. 35 mm. Exp. tegm. 88 mm.

Type ♂ (and only known specimen): Sandaran Agong, 2450 ft., Korinchi Lake, Sumatra, May-June, 1914. Deposited in the British Museum.

This is an interesting novelty in that it constitutes what is apparently the first record of a *Cosmopsaltria* from Sumatra. From the neighbouring island of Borneo, Mr. Distant records five species (I recognise two more) and two are known from the Malay Peninsula, so the long absence of a record from Sumatra, which has so similar a fauna, is very remarkable; no doubt many more species await discovery there. Mr. Distant divides the species of this genus into two groups on the opercula. This species comes into the first group on account of the dark-margined opercula. With *C. ida*, described by me from Sarawak in 1911, it can be distinguished from the other species of this section by the plain, unspotted tegmina. From *C. ida* it differs in the larger size and different markings of the head, pronotum, and mesonotum, and different shape of the opercula. *C. sumatrana* seems to be nearest to this Bornean species, but not, I think, near enough to be considered a geographical race. [It is also allied to *C. alticola*, Dist. from Borneo.—W. L. D.]

SOME NOTES ON THE LIFE HISTORY OF GONEPTERYX CLEOPATRA.

BY CAPT. E. BAGWELL-PUREFOY, F.E.S.

DURING the summer of 1902 we received several dozen pupæ of *Gonepteryx cleopatra* from the south of France, and turned out the resulting butterflies in Tipperary, Ireland. The two lessons we learnt by this somewhat imperfect experiment were, firstly, that some, at any rate, of these butterflies paired and laid almost at once; and, secondly, that the resulting larvæ would feed up satisfactorily on all species of *Rhamnus* that we offered them with the sole exception of *R. frangula*. This last appeared to poison them, and they seldom survived on it for more than three days.

When, in 1907, a large butterfly enclosure in Kent became available for experiments of this kind, we determined to try and gather some definite information concerning the life history and habits of this beautiful species; and, having stocked the garden with them in 1908, we have been successful in keeping the breed going ever since.

During these nine years we have carried out various experiments and made copious notes on the species, and as these point to conclusions not generally known or accepted, it would, perhaps, be as well to set them out briefly here.

To *cleopatra*, I think, has generally been attributed the same life history as *rhanni*, but our observations go to prove a wide divergence, especially where the pairing habits are concerned. These pairing habits, the longevity of the females, and the occasional lying over of the pupa are the chief points now to be discussed.